

## **Ice Sheets, Sea Ice, and Satellites: Transforming Polar Paradigms**

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From disappearing Arctic sea ice to collapsing ancient ice shelves to accelerating outlet glaciers, the Earth's polar ice cover is changing in remarkable ways. Yet it wasn't until the advent of innovative remote sensing techniques, that the rapid transformation of these silent and distant ice masses could even be observed, much less understood. NASA investments in science and technology, along with those of its interagency and foreign partners, have pushed back the frontiers of cryospheric research, and continue to provide important new insights into these critical components of the Earth System. When coupled with in situ observations and robust process models, these large-scale four-dimensional observational capabilities are helping us understand the nature of the changing ice cover, the processes that govern those changes, and what the implications for the future may be. A look back and a look forward will reveal the past, present, and potential future contributions of remote-sensing observations to our understanding of the Earth's high-latitude ice cover – one of the most rapidly changing components of the Earth system.